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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/722,424

11/28/2003

Masayoshi Imoto

117892

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EXAMINER

BEMBEN, RICHARD M

ART UNIT

PAPER NUMBER

2622

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/722,424	<b>Applicant(s)</b> IMOTO, MASAYOSHI	
	<b>Examiner</b> Richard M. Bemben	<b>Art Unit</b> 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 April 2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/30/04, 6/20/06</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. Figures 8 and 9 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to because in Figure 3, label "30R" points to prism 32's left side and label "32L" points to prism 30's right side. These labels need to be interchanged in order for the discussion on pages 20-21 to correctly correspond to Figure 3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering

of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 2-5 and 9-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims 2 and 9 contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 2 and 9 require incident light to be reflected twice internally between one prism side surface and the other prism side surface. According to applicant's specification side surfaces 30L and 32R are "maintained to be transmittable surfaces" (p. 11, ll. 23-25), while the side surfaces 30R and 32L are formed with a deposited metal layer in order to be reflective (p. 12, ll. 1-6). If side surfaces 30L and 32R are transmittable surfaces, then incident light 70L and 70R cannot be internally reflected from 30L and 32R, hence incident light cannot be reflected twice internally.

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5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 5 and 12 recite the limitation "at least part of the ridged portion". There is insufficient antecedent basis for this limitation in the claim.

### ***Specification***

7. The disclosure is objected to because of the following informalities:

Page 4, line 10: "lower" change to "upper"

Page 9, line 20: "front case 51a" change to "front case 50a"

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. **Claims 1 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 7,030,926 issued to Miyake et al., hereinafter "Miyake".**

Regarding **claim 1**, Miyake disclose a camera device for imaging a plurality of directions in a visual field simultaneously (c. 6, ll. 29-44), the device comprising:

an image pickup unit having a single image pickup device (Figs. 3A and 3B, "3") and an image pickup lens disposed in front of the image pickup device (Figs. 3A and 3B, "202");

an optical unit disposed in front of the image pickup unit and configured to guide incident light from a plurality of directions in the visual field to the image pickup unit (Figs. 3A and 3B, "6");

and a supporting unit for supporting the optical unit, wherein the supporting unit comprises a tapered supporting member having a thickness gradually reduced toward the image pickup unit (Figs. 3A and 3B, "1").

Regarding **claim 6**, Miyake further discloses that the supporting unit is configured to support the optical device to be inserted along a direction substantially perpendicular to the optical axis of the image pickup lens (Figs. 3A and 3B), and wherein the tapered supporting member is configured to receive the optical device on the opposite side from the side on which the optical device is inserted and supports the same (Figs. 3A and 3B).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**11. Claims 1-3, 5, 6, 8-10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,166,764 issued to Sakata in view of Miyake.**

Regarding **claim 1**, Sakata discloses a camera device for imaging a plurality of directions in a visual field simultaneously (c. 1, ll. 15-30; Figs. 11 and 12; c. 2, l. 45 – c. 3, l. 23; Fig. 15), the device comprising: an image pickup unit having a single image pickup device and an image pickup lens disposed in front of the image pickup device (Fig. 12, “3” and “13”); an optical unit disposed in front of the image pickup unit and configured to guide incident light from a plurality of directions in the visual field to the image pickup unit (Fig. 15, “7a” and “7b”). It is inherent that there is a supporting structure for the optical unit in Sakata. However, Sakata does not disclose a supporting unit that comprises a tapered supporting member having a thickness gradually reduced toward the image pickup unit.

Miyake disclose a camera device for imaging a plurality of directions in a visual field simultaneously (c. 6, ll. 29-44) comprising an optical unit disposed in front of the image pickup unit and configured to guide incident light from a plurality of directions in the visual field to the image pickup unit (Figs. 3A and 3B, “6”) and a supporting unit for

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supporting the optical unit, wherein the supporting unit comprises a tapered supporting member having a thickness gradually reduced toward the image pickup unit (Figs. 3A and 3B, "1"). Miyake discloses tapering the support so that the support does not interfere with the incident light. Therefore, it would have been obvious to one of ordinary skill in the art to taper the supporting member as disclosed by Miyake in the device disclosed by Sakata in order to hold the optical unit secure while remaining out of the path of the incident light.

Regarding **claim 2**, refer to the rejection of claim 1 and Sakata further discloses that the optical unit comprises a prism formed substantially in a triangle prism including a rear prism surface and a pair of side prism surfaces, the rear prism surface facing the image pickup lens, and one prism side surface facing a side visual field of the image pickup unit, the prism allowing an incident light entered through the one prism side surface to be reflected twice internally between the one prism side surface and the other prism side surface and then to output through the prism rear surface, and guiding the light beam toward the image pickup lens (Fig. 15, "7a" and "7b", it is inherent that at least a small portion of the light is reflected at least twice internally between the side surfaces due to the difference in the index of refraction at the boundaries of the prism).

Regarding **claim 3**, refer to the rejection of claim 2 and Sakata further discloses that the prism comprises a pair of left and right prisms disposed symmetrically on the front side of the image pickup unit, and wherein the left prism is arranged that a left



prism side thereof faces toward the left visual field and the right prism is arranged that a right prism side thereof faces the right visual field (Fig. 15, "7a" and "7b").

Regarding **claim 5**, refer to the rejection of claim 2 and Sakata further discloses that at least part of the ridged portion surrounding the rear surface of the prism has an angular shape formed of surfaces intersecting with each other (Fig. 15, "7a" and "7b", the intersection of the side surfaces with the back surface has an angular shape).

Regarding **claim 6**, Miyake further discloses that the supporting unit is configured to support the optical device to be inserted along a direction substantially perpendicular to the optical axis of the image pickup lens (Figs. 3A and 3B), and wherein the tapered supporting member is configured to receive the optical device on the opposite side from the side on which the optical device is inserted and supports the same (Figs. 3A and 3B).

Regarding **claim 8**, refer to the rejection of claim 1 and Sakata further discloses a camera device mounted on a vehicle and configured to pick up images of a plurality of directions in a visual field simultaneously; a processing unit configured to process the image picked up by the camera device; and a display unit installed in a cabin of the vehicle and configured to display the image processed by the processing unit.

Regarding **claim 9**, refer to the rejection of claim 2.

Regarding **claim 10**, refer to the rejection of claim 3.

Regarding **claim 12**, refer to the rejection of claim 5.

Regarding **claim 13**, refer to the rejection of claim 6.

**12. Claims 4, 7, 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakata in view of Miyake in further view of the applicant's admitted prior art, hereinafter "AAPA".**

Regarding **claim 4**, Sakata in view of Miyake disclose a camera device for imaging a plurality of directions in a visual field simultaneously comprising an optical device and a tapered support member supporting the optical member (refer to the rejections of claims 1 and 2). However, Sakata in view of Miyake does not disclose that the supporting member is disposed between an image pickup range of an image to be picked up with the intermediary of the prism and the image pickup range of an image to be picked up without the intermediary of the prism.

AAPA discloses a camera device for imaging a plurality of directions in a visual field simultaneously comprising an optical device and a support member wherein the support member is disposed between an image pickup range of an image to be picked up with the intermediary of the prism and the image pickup range of an image to be picked up without the intermediary of the prism (pp. 1-4; Figs. 8 and 9). Therefore, it would have been obvious to one of ordinary skill in the art to place the supporting member as disclosed by AAPA in the camera device disclosed by Sakata in view of

Miyake to image in plural directions such as an area with light passing through the prism and an area without light passing through the prism, as described in Figs. 8 and 9 of AAPA.

Regarding **claim 7**, Sakata in view of Miyake disclose a camera device for imaging a plurality of directions in a visual field simultaneously comprising an optical device and an image pickup lens (refer to the rejection of claim 1). However, Sakata in view of Miyake does not disclose that the optical unit is disposed so as to cover a part of the image pickup lens, and further comprises a sub-image pickup lens disposed so as to cover other part of the image pickup lens.

AAPA discloses a camera device for imaging a plurality of directions in a visual field simultaneously comprising an optical device and an image pickup lens wherein the optical unit is disposed so as to cover a part of the image pickup lens, and further comprises a sub-image pickup lens disposed so as to cover other part of the image pickup lens (pp. 1-4; Figs. 8 and 9). Therefore, it would have been obvious to one of ordinary skill in the art to place the supporting member as disclosed by AAPA in the camera device disclosed by Sakata in view of Miyake in order to image in plural directions such as an area with light passing through the prism and an area without light passing through the prism, as described in Figs. 8 and 9 of AAPA.

Regarding **claim 11**, refer to the rejection of claim 4.

Regarding **claim 14**, refer to the rejection of claim 7.

***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**U.S. 5,708,857** issued to Ishibashi discloses a multi-direction camera comprising a mirror 3 having a plurality of reflecting surfaces 31 and 32 disposed in front of a lens.

**U.S. 5,959,555** issued to Furuta discloses a blind spot checking apparatus comprising an apparatus main body, which is installed on the outside of a vehicle and which is directed toward the view to be taken in by image sensors, and a display apparatus, which is installed inside the vehicle and which displays the graphic information taken in by the above-mentioned image sensors.

**U.S. 5,756,988** issued to Furuta discloses a device for checking lateral views at front/rear ends of a vehicle comprises an image pickup unit having a light path altering assembly and an image sensor and disposed at a front or rear end of a vehicle, for taking into the image sensor image information of areas on the right and left of the vehicle by way of the light path altering assembly and image information of an area ahead of the image sensor through a gap formed along an extension of an axial line of the image sensor.

**U.S. 7,253,833, U.S. 6,587,285, U.S. 6,788,478** issued to Imoto.

**U.S. 2005/0057651** issued to Imoto et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard M. Bemben whose telephone number is (571) 272-7634. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye can be reached on (571) 272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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